

Drawing Amendments

A replacement sheet, bearing FIG. 1, is attached. The legend REPLACEMENT SHEET appears at the upper edge of the sheet. The notation, PRIOR ART, has been added to FIG. 1.

REMARKS

Independent claim 1, and dependent claims 4-9 and 11, are presented for consideration on their merits. The substance of dependent claim 10, now canceled, has been introduced into claim 1 to point out the novel, and unobvious, aspects of applicant's energy production system which employs two reactors. The claims, as presently revised, correspond to the claims of record in the counterpart application in New Zealand, which has now been allowed.

The present application, as amended, "produces pure gaseous hydrogen by the reduction of water by electropositive half-cell reactions involving two or more electropositive redox systems" (see page 5, lines 16 to 19). The multiple redox reactions involve the transfer of electrons which result in the formation of compounds different from the original reactants. These systems are chosen to maximize hydrogen production and desirably produce by-products that are valuable rather than harmful or useless.

Amended claim 1 recites a:

...system having two reactors, the first reactor being a primary reaction system that includes the steps of selecting an electronegative half cell reaction production hydrogen; selecting a first electropositive half cell reaction having a sufficient potential to drive said electronegative half cell reaction; selecting a second electropositive half cell reaction; said first and second electropositive half cell reactions selected in combination with said electronegative half cell reaction to produce hydrogen and/or energy production from water; and combining said half cell reactions; and the second reactor including the step of introducing steam produced as a by-product of the first reactor at elevated temperature and a positive pressure into the second reactor, wherein energy added to the second reactor by the addition of the steam is used by reaction systems in the second reactor as activation energy.

The claims as amended define an invention having two reactors, a first reactor being a primary reaction system, and a second reactor introducing steam produced as a by-product of the first reactor. We respectfully submit that for this reason, at least, claim 1 as amended, is novel and unobvious over the cited art. Additionally, the remaining claims, by virtue of their dependency on claim 1 at least, are also novel and unobvious over the cited art.

Turning now to the first objection (item no. 1), Figure 2 has been labeled as "prior art." Figure 2 is pertinent to the present invention, and would not be found in any physics or physical chemistry books describing the electrolysis of water as alleged by the Examiner. In

fact, the 'protegy reactor' labeled in Figure 2 is the prior art reactor taught in Stephenson et al and the remainder of the figure being relative to the system of the present invention.

Regarding item no. 2, the Examiner is correct in asserting that the electrode potential for reduction of water is -0.83V. The specification has been revised accordingly.

At item no. 5, the Examiner alleges that "paragraph 0032 fails to define a reactive or a catalytic point". We believe that this paragraph clarifies that the catalytic point may be a reactive or catalytic surface (e.g., a sheet member, as opposed to, for example, a point on a surface or within a zeolite). The catalytic point may not be a reactive/catalytic surface, and therefore we believe that this paragraph does not "merely restate the obvious" but rather clarifies what the catalytic point may be.


At item no. 7, the Examiner contends that the specification does not "provide enablement for dissociation of water at or near a reactive or catalytic surface of formation or a semiconductive material". We respectfully disagree, and submit that a skilled artisan would be able to utilize Figure 2 in combination with the descriptive portion of the specification to realize the claimed invention as amended.

Claims 1, 4-9, and 11 have been re-drawn to clearly recite patentable subject matter neither disclosed, nor suggested, by U.S. Patent 6,866,835, Stephenson et al. The Examiner's comments regarding Stephenson et al were carefully considered, and distinguished, while re-drafting the claims of record.

Similarly, claims 1, 4-9 and 11 have been re-drawn to overcome the rejection predicated upon 35 USC §112, second paragraph. The claims of record particularly point out, and distinctly claim, the unique subject matter which applicant regards as his invention.

Respectfully submitted,

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